Remarks

Claims 1–22 remain pending in the present application. It is respectfully submitted that the pending claims define allowable subject matter.

Claims 1–22 have been rejected under 35 USC Section 103(a) as being unpatentable over Despard (6,310,295) in view of Wentworth (GB 725,624). The undersigned respectfully traverses this rejection. It is submitted that the outstanding Office Action fails to set forth a prima facie case of obviousness because the primary reference to Despard would not suffer the disadvantages or problems associated with the motivations suggested in the Office Action for the person of ordinary skill to modify Despard based on the teachings of Wentworth.

Claims 1, 10 and 19 concern cables that include a core that comprises one or more twisted pairs of insulated wires. A jacket surrounds the core and the jacket comprises one or more splines projecting inward from the jacket wherein the spline is in contact with the twisted pair(s) to prevent relative movement of the jacket with respect to the twisted pair(s).

In the outstanding Office Action, it is maintained that Despard discloses a cable comprising a core with at least one twisted pair of insulated wires and a jacket surrounding the core. While the Office Action acknowledges that Despard does not suggest adding to the jacket, at least one spline projecting inward from the inner surface of the jacket, it is maintained that Wentworth makes up for this deficiency. In particular, it is maintained that it would have been obvious to provide the jacket of Despard with a plurality of splines projecting inward from the inner surface of the jacket, based on Wentworth's teachings, i) to provide air channels for cooling around the insulated wires, ii) to provide a cable having an improvement in the case of stripping and iii) to increase the flexibility of the cable, all allegedly as taught by Wentworth.

For reasons set forth below, it is submitted that Despard does not suffer from any disadvantage that Wentworth suggests adding ribs to overcome. Despard teaches a construction for a data cable based on 1999 technology and the 1999 state of the art (the Despard patent application was filed December 3, 1999). Wentworth teaches a construction for a power cable based on 1953 technology and the state of the art in 1953 (the Wentworth patent was filed June 23, 1953). As such, the available materials, manufacturing techniques, and performance requirements (both physical and electrical) at the time of Despard's invention are much more

refined, developed and advanced, as compared to the available materials, manufacturing techniques, and performance requirements that were available and known in 1953 at the time of Wentworth's invention. Therefore, it does automatically or necessarily follow that the power cabling problems, circa 1953, discussed by Wentworth would be experienced by Despard's data cable, built in 1999.

One cannot ignore the fact that forty six (46) years separate the filing dates of Wentworth and Despard. Yet, despite the significant period of time that Wentworth's teachings were readily available and know to the public, no one chose to apply Wentworth's jacket construction to a twisted pair data cable, before or since Despard's 1999 filing data. If the claimed invention of the present application were obvious, as maintain in the Office Action, why has no one implemented such a cable (prior to applicant's invention)? Similarly, why has no one described the claimed twist pair cable in a printed publication (prior to applicant' patent application)? The answers seem clearly, namely there was no legitimate reason, before applicant's invention, to utilize a jacket with splines to hold in place twisted pair wires.

Beginning with the second motivation offered in the Office Action to support the combination, namely to provide a cable having an improvement in the case of stripping, the data cable of Despard would not suffer from cracking or tearing during stripping as described in Wentworth. Wentworth describes an insulated electrical wire or cable that has a core that includes a conductor with a covering of plastic that is enclosed within an adjacent layer of the same or similar plastic material. Wentworth explains that the problem within the prior art is that the core insulation is damaged when the outer layer of insulation is removed, for instance when preparing the end of the wire for a joint or termination. Wentworth indicates that the damage to the core insulation occurs due to adhesion of the outer layer of plastic material to the inner layer of plastic material. The adhesion between the inner and outer layers of plastic produces tearing and cracking of the inner layer as the outer layer is drawn away (column 1, lines 13-23). Wentworth goes on to indicate that the damage of tearing and cracking is more likely to occur in cold temperatures and when the inner and outer layers of thermoplastic materials are made from PVC or from a copolymer of PVC and polyvinyl acetate. Wentworth addresses this problem within the prior art by forming shallow ribs on the inner surface of the outer layer that project radically inward "so that the touching of the two layers is reduced to substantially line contacts." Wentworth goes on to explain that the line contact arrangement minimizes the area of contact

between the two layers, so that if adhesion between them should occur, the likelihood of damage to the inner layer when stripping away the outer layer is greatly reduced (column 2, lines 77-82).

Despard's data cable would not experience adhesion between the twisted pairs and the cable housing jacket 30 and thus there is no reason, need, or advantage in adding Wentworth's ribs to Despard's jacket 30. Despard's data cable would not experience adhesion between the twisted pairs 10 and the jacket 30 since the twisted pairs 10, due to their helical geometry do not have large areas of continuous contact with the jacket 30. In Despard, the twisted pairs 10 only touch the jacket 30 at separate and discrete points, namely in the separate portions of each twisted pair that are exposed and located adjacent to the inner surface of the jacket 30. As the twisted pair 10 propagates along the length of the jacket 30, each twisted pair rotates in a helical manner which, by its very nature, ensures substantial portions of each twisted pair 10 are separated from the inner surface of the jacket 30. Therefore, due to the helical geometry of a twisted pair configuration, Despard's data cable would experience substantially less direct contact between the twisted pair 10 and the jacket 30, as compared to the amount of contact experienced by single strand wires and cables, as discussed in the background section of Wentworth.

Wentworth's teachings are concerned with cables having individual conductors enclosed in plastic to form single strands, where the group of single strands are then enclosed in a directly adjacent layer of the same or similar plastic (column 1, lines 9-13). Wentworth adds the ribs to produce line contacts between the ribs and the insulation on the individual conductors. When the amount of contact, that is created by the line contact geometry of Wentworth, is compared to the amount of contact, that is created by the point contact geometry of the twisted pairs of Despard, it is clear that Despard provides a very segmented contact arrangement between the twisted pairs and the jacket which is even more advantageous than the line contacts created between Wentworth's single conductors and the ribs.

Further, Despard's data cable would not experience adhesion simply because the insulator on the twisted pairs 10 and the jacket 30 are formed from dissimilar materials. The jacket 30 is make of rubber, plastic or polymer. The insulator on the twisted pairs 10 is formed from a polyethylene or fluoropolymer. Polyethylene and fluoropolymer insulators have very different properties and much higher melting points than those of the rubber, plastic or polymer forming the jacket 30. For example, the melting point of a polyethylene or fluoropolymer

insulation may be over 700° F, while the melting point of rubber, plastic or PVC may be under 400° F. Because the twisted pairs 10 use insulation formed of a material that is very dissimilar from the materials used to form the jacket 30, no adhesion would be experienced there between. Further, by its very nature, fluoropolymers (e.g., Teflon) used to form the insulation on the twisted pair 10 are extremely resistant to sticking to other materials, and are very tough. Thus, the twisted pairs 10 are covered in a material that is particularly well-suited to avoiding adhesion to the jacket 30 and to avoid tearing.

The Despard patent is intended for a fundamentally different application. Further, Wentworth represents a 1955 patent concerned with forming an electrical wire designed to convey high power. The wire or cable of Wentworth, as a high power carrier, is constructed with certain characteristics tailored to and specific to high power applications. In contrast, Despard's cable is not designed nor intended for conveying high levels of power, but instead represents a data cable intended to convey data using 1999 technology. Data cables as used in the 1990s and beyond are constructed to provide certain data conveying characteristics (e.g., maintaining low cross talk). Data cables also have different safety requirements as compared to the power cables produced in the 1950s. Data cables in the 1990s and later were constructed with better burn characteristics, such as by providing insulation on individual wires (e.g., Teflon insulation on the twisted pair 10) that has a higher melting point, as compared to the PVC of the jacket 30. In view of the foregoing, it is respectfully submitted that Despard's data cable would not suffer from the problem of adhesion and thus the person of ordinary skill would not have been motivated to add Wentworth's ribs to address tearing or cracking issues.

Moreover, the person of ordinary skill would not have been motivated to add Wentworth's ribs to Despard's jacket 30 to provide air cooling channels. Despard's data cable is formed in a manner that does not need additional air cooling during the manufacture. Nor is there any indication that the addition of Wentworth's ribs would increase the amount of air cooling that would be of any use during the manufacturing process of Despard. Wentworth discusses at page 2, column 1, lines 4-6 that the effect of adding the ribs further reduces the risk of adhesion during manufacture by cooling that is provided by the existence of the air channels 13 between the inner and outer layers. However, Despard's cable would not experience such heating during manufacture. As clearly shown in each and every cross section of Despard's data cable, there is significant air space already provided within the jacket 30 surrounding the twisted

pairs 10. Adding ribs to the jacket 30 would not introduce additional air space, nor improve the air cooling properties of Despard's data cable. Further, Despard's data cable is manufactured in a very different manner than Wentworth's. The twisted pairs 10 are formed separately from, and before extrusion of, the jacket 30 there over. Also, the melting point of the polyethylene or Teflon fluoropolymer insulation is significantly higher than that of the jacket. Therefore, heating would not be an issue in Despard's data cable as compared to Wentworth's power cable.

Finally, there is no indication in Despard, or Wentworth, that Wentworth's ribs would change the flexibility of Despard's cable. The flexibility of Wentworth's cable is limited because the inner and outer insulation layers are made of PVC or a similarly inflexible material. The flexibility of Wentworth's cable is further limited if adhesion occurs between the inner and outer layers. In contrast, Despard uses polyethylene or fluoropolymer insulation on the twisted pairs 10, which has a different amount of flexibility from PVC and does not adhere to PVC. Thus, there is no suggestion in the prior art that Wentworth's ribs would have any impact upon the flexibility of Despard's cable.

In view of the foregoing, it is respectfully submitted that Despard would not suffer from any disadvantage, that Wentworth suggests to overcome by adding ribs to the jacket. Thus, a prima facie case of obviousness has not been set forth as the suggested motivations for the combination of Despard and Wentworth are not sound and would not have lead the person of ordinary skill to modify by Despard's data cable.

In view of the foregoing, it is respectfully submitted that the pending claims define allowable subject matter. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

Respectfully Submitted,

Date: January 5, 2007

Dean D. Small, Reg. No. 34,730
THE SMALL PATENT LAW GROUP LLP
611 Olive Street, Ste. 1611
St. Louis, MO 63101
(314) 584-4081